SUPERFUND RESPONSE ACTION PRIORITY PANEL REVIEW FORM

Date Form Completed: 10/14/2011

General Site Information

Region:	Region 5	City:	St. Clair Shores	State:	Michigan
CERCLIS EPA ID:	MIN000510063		CERCLIS Site Name:	Ten-Mile Drain	
NPL Status: (P/F/D)	Final (F)		Year Listed to NPL:	2010	

Brief Site Description: *(Site Type, Current and Future Land Use, General Site Contaminant and Media Info, Site Area and Location information.)*

The Ten-Mile Drain Superfund Site is a fund-lead site located northeast of the City of Detroit and on the western shores of Lake St. Clair in St. Clair Shores, Macomb County, Michigan. The site is located in a mixed commercial/residential area and it is anticipated that the land usage in the immediate vicinity of the site will remain unchanged for the foreseeable future.

The site includes a portion of the Ten Mile drain storm sewer system near the intersection of Bon Brae Street and Harper Avenue where elevated levels of PCB contamination have been documented in the drain and the soil surrounding the drain since 2001. The Ten Mile drain, located approximately 15 feet under the ground, is a network of storm sewers and catch basins that collect and manage storm water runoff. The drain pipe has an average diameter of 6 feet (8 feet at the outfall) and empties into the Lange and Revere Street canals, which open into Lake St. Clair. The canals, which provide recreational boating access to Lake St. Clair for approximately 125 homes, are private property and are used for recreational boating, swimming, and fishing. Based on the results of fish tissue samples collected by the State of Michigan in 2010, the Michigan Department of Community Health issued a "do not eat" advisory in May 2011 for fish taken from the Lange and Revere canals. As a further precaution, the State recommends that no one eat carp or catfish caught from Lake St. Clair.

EPA is currently in the early stages of the RI/FS, so the original contaminant sources are unknown, and the nature and extent of contamination, potential transport pathways, and environmental receptors have not been fully characterized for the site.

General Project Information

Type of Action:	Remedial		Site Charging SSID:	B5BP	
Operable Unit:	00		CERCLIS Action RAT Code:	RA001	

Is this the final action for the site that will result in a site construction completion?	☐ Yes	☒ No
Will implementation of this action result in the Environmental Indicator for Human Exposure being brought under control?	☐ Yes	☒ No

Response Action Summary

Describe briefly site activities conducted in the past or currently underway:

Over the past ten years, several removal actions and associated investigations have been conducted since PCBs were discovered in the Ten Mile drainage system in 2001. In 2002, before it became apparent that the PCBs were continuing to enter the drainage system, an EPA removal action dredged the PCB-contaminated sediment from the Lange and Revere canals and flushed out the storm drain system. Later, however, high concentrations of PCBs were again found in the drain and in the sediment of the canals. Given that there is a continuing source of PCBs, the most recent site activities have focused on identifying the source and on source control measures.

During a 2006 EPA removal action, a large sediment trap to collect contaminated sediment was installed in the drain at the outfall. During a removal action in 2010, EPA placed a series of weirs (half-circle metal structures that act like small dams) within the drain to help identify where the contamination is entering the drain and to help slow the movement of the PCBs from the drain into the Lange and Revere Canals. In September 2010, EPA placed the Ten-Mile Drain Site on the National Priorities List. EPA is currently in the early stages of a fund-lead RI/FS, with a focus on identifying the source of the PCBs.

EPA conducted another removal action at the site on February 26, 2011, to remove PCB oil from the drain. Absorbent snares were used to swipe and soak up the oil that had collected behind the weirs. A total of six of the seventeen weir locations required cleanout. Clean snares were then attached to weighted chains and left directly upgradient of selected weirs to allow any new incoming oil to collect on them and to support future sample collection and removal efforts.

In April 2011 EPA conducted source area investigation field sampling activities and collected 90 soil samples within the underground utility corridors (sanitary sewer, water and ten mile drainage system) as well as ground water samples. In August 2011 EPA collected sediment samples from the Lange and Revere street canals to characterize the level of PCB contamination in the canal sediments. Next steps include finalizing the field sampling summary reports and planning the next phase of the investigation based on an evaluation of that data.

Specifically identify the discrete activities and site areas to be considered by this panel evaluation:

The interim source control action selected by EPA's September 2011 Interim ROD is a limited-scope action and intended only to address the PCB contamination collecting behind the seventeen weirs installed within the Ten Mile storm drainage system and in the sediment trap at the outfall. The interim remedy includes the following source control activities:

Monitoring and Sampling: Monthly monitoring of sediment and oil behind the seventeen weirs near the Bon Brae and Harper intersection and at the sediment trap located at the outfall of the Ten Mile drain will be conducted. Sediment samples will be collected using a stainless steel Ponar sampler or similar device capable of collecting submerged sediment samples with minimal disturbance and/or resuspension of sediments. Visual observations will be made of the collected materials to determine the presence of oil. EPA will evaluate the effectiveness of its sediment collection method and adjust it as deemed necessary. EPA may also adjust the frequency of the monitoring and sampling events as deemed necessary;

- Removal of Sediment: Sediment removal will generally be conducted behind any weir or at the outfall sediment trap if the depth of the sediment is sufficient that it is recoverable from the drain. Sediment removal will be conducted using the same device used in the sediment monitoring activities or by another method deemed appropriate by EPA. Sediment removal will generally be conducted concurrent with the sampling effort. If sample results later show that the sediments that were removed were not contaminated with PCBs, and if this trend continues for more than one month, then EPA may decide during subsequent events to leave sediments in place behind the weirs and/or at the outfall sediment trap until sample results are received that confirm the presence of PCBs.
- Removal of Oil: If visual observation reveals the presence of oil behind the weirs, absorbent snares will be used to wipe up and absorb the oil and the soiled snares removed. After the oil is removed, clean absorbent snares will be placed in the drain directly upgradient of the selected weir or the sediment trap at the outfall. The snares will be attached to a weighted chain to hold them at the bottom of the drain. During each monitoring event absorbent snares will be removed and inspected. If the absorbent snares appear stained

or statured with oil they will be replaced.

- Disposal of Saturated Snares and PCB-Contaminated Sediment: PCB-contaminated sediment and saturated snares will be placed in Michigan Department of Transportation-approved 55-gallon drums, transported and disposed at an approved disposal facility.

Briefly describe additional work remaining at the site for construction completion after completion of discrete activities being ranked:

EPA is currently in the early stages of a fund-lead RI/FS, with a focus on identifying the source of the PCBs. The interim source control activities are necessary to prevent further PCB migration to the Lange and Revere street canals. Periodic removal of contamination from within the drain will achieve the goal of mitigating the discharge of PCB contamination into the canals and the environment and preventing further environmental degradation while the RI/FS is completed and the final remedy is selected and implemented at the Ten-Mile Drain Superfund Site.

Response Action Cost

Total Cost of Proposed Response Action:

($ amount should represent total funding need for new RA funding from national allowance above and beyond those funds anticipated to be utilized through special accounts or State Superfund Contracts.)

The estimated cost is $232,150 per year for monthly interim source control activities, with a total present value over a five-year period of $1,131,338.

Source of Proposed Response Action Cost Amount:

(ROD, 30%, 60%, 90% RD, Contract Bid, USACE estimate, etc…)

September 2011 Interim ROD

Breakout of Total Action Cost Planned Annual Need by Fiscal Year:

(If the estimated cost of the response action exceeds $10 million, please provide multiple funding scenarios for fiscal year needs; general planned annual need scenario, maximum funding scenario, and minimum funding scenario.)

The estimated cost is $232,150 per year for monthly interim source control activities.

Other information or assumptions associated with cost estimates?

Assumes monthly source control activities, but the ROD says that EPA may change the frequency as deemed necessary. Total present value cost estimate assumes activities will be conducted over a period of five years and assumes a discount rate of 1.3%.

Readiness Criteria

1. Date State Superfund Contract or State Cooperative Agreement will be signed (Month)?

The SSC is being drafted and is anticipated to be signed by February 2012.

2. If Non-Time Critical, is State cost sharing (provide details)?

n/a

3. If Remedial Action, when will Remedial Design be 95% complete?

The interim action selected for the Ten-Mile Drain does not include a construction phase, therefore there is not really a "design" for the work to be conducted. Region 5 intends to use a removal contractor for this work, and the Remedial Design will be considered complete when EPA approves the contractor's Work Plan to implement the interim source control activities. The Region 5 removal program has already conducted this work twice and it is the remedial programs intention to follow the same approach. The Remedial Design is anticipated to be completed by December 2011, but could be completed earlier if necessary; the Work Plan will not take long to prepare and approve.

4. When will Region be able to obligate money to the site?

The Region will be able to obligate money to the site as soon as we can obtain the funds. As noted above, Region 5 intends to use a removal contractor for this work, and the Work Plan will not take long to prepare.

5. Estimate when on-site construction activities will begin:

The source control activities can be implemented immediately since the interim action has no construction phase.

6. Has CERCLIS been updated to consistently reflect project cost/readiness information?

CERCLIS has been updated to reflect project cost/readiness information.

Site/Project Name:	**Ten-Mile Drain**

Criteria #1 - RISKS TO HUMAN POPULATION EXPOSED (Weight Factor = 5)

Describe the exposure scenario(s) driving the risk and remedy. Include risk and exposure information on current/future use, on-site/off-site, media, exposure route, and receptors:

The focus of the interim action is to provide source control measures to mitigate the discharge of PCB contamination to the Lange and Revere canals and Lake St. Clair, where fish consumption advisories are now in effect. PCBs continue to infiltrate the storm sewer, and the storm sewer empties into these two canals that are connected to Lake St. Clair. The canals, which provide recreational boating access to Lake St. Clair for approximately 125 homes, are private property and are used for recreational boating, swimming, and fishing. The potential release of PCB contamination from the drain to the environment may present an imminent and substantial endangerment to the public health, welfare, or the environment.

Neither a formal RI/FS Report nor a human health or ecological risk assessment are available. Ecological and human health risks associated with the site, as well as the ultimate cleanup objectives, will be further evaluated and addressed in a future decision document. Limited information is available regarding the nature and extent of soil, sediment and groundwater contamination at the site.

Monitoring data collected behind the seventeen weirs between May 2010 and April 2011 tracked sediment concentrations and tested for the presence of PCB oil. All sediment samples collected for analysis from the drain to date have contained PCBs. PCB oil is consistently found at six weirs along Bon Brae Street and Harper Avenue. All samples collected behind the weir at the Bon Brae and Harper manhole contained PCBs. The PCB oil caught behind the Bon Brae and Harper weir tested as high as 240,000 ppm and 180,000 ppm, and as low as 23 ppm and 2,300 ppm.

There is little current human exposure to the PCB oil or contaminated sediment in the drain system, which is located approximately 15 feet under the ground. The ten mile drainage system is maintained by the Macomb County Public Works Department. Maintenance is performed on an as needed basis and is it rare that a worker would enter the vault. If there was a reason to enter the vault to conduct repairs, there would be a

risk to the worker. The interim ROD sampling activities do not require a confine space entry.

However, sediments in the Lange and Revere canals are contaminated with PCBs from past releases into the canal from the drain. In August 2011 Region 5's FIELDs staff collected approximately 100 surface sediment samples and 40 subsurface sediment samples from the Lange and Revere street canals. Preliminary sediment PCB concentrations ranged from a minimum of 0.11 parts per million or ppm and to the maximum of 570 ppm with a mean PCB concentration of 23.88 ppm.

Estimate the number of people reasonably anticipated to be exposed in the absence of any future EPA action for each medium for the following time frames:

MEDIUM	<2yrs	<10yrs	>10yrs
Sediment	125 homes	125 homes	125 homes

Discuss the likelihood that the above exposures will occur:

In the absence of the interim source control actions, high concentrations of PCB contamination will continue to be released from the drain to the Lange and Revere street canals, and the sediments and fish will continue to be contaminated. PCB oil is consistently found behind six of seventeen weirs along Bon Brae Street and Harper Avenue. The PCB oil behind the weir at the Bon Brae and Harper manhole has tested as high as 240,000 ppm.

Other Risk/Exposure Information?

In April 2010 MDEQ arranged for the collection of black crappie (8), carp (12), largemouth bass (13), and pumpkinseed (5) from the Lange and Revere canals to evaluate PCB concentrations in the edible portion (i.e., fillet). Lab analysis results revealed total PCB concentrations in the 12 carp fillets collected from Lange/Revere canals ranged from 13 to 215 parts per million (ppm), with a median concentration of 88 ppm. The total PCB median concentrations for the remaining species collected are as followed; the 8 black crappie with 15.1 ppm, the 5 pumpkinseed with 12.1 ppm and the 13 largemouth bass with 3.2 ppm All fish tissue results exceed the "do not eat" fish advisory value of 2.0 ppm of PCBs that applies to everyone including adults. Therefore, in May 2011 the Michigan Department of Community Health issued a "do not eat" advisory for fish taken from the Lange and Revere canals. As a further precaution, the State recommends that no one eat carp or catfish caught from Lake St. Clair.

Site/Project Name:	Ten-Mile Drain

Criteria #2 – SITE/CONTAMINANT STABILITY (Weight Factor = 5)

Describe the means/likelihood that contamination could impact other areas/media given current containment:

PCB oil continues to filtrate into the Ten Mile storm drainage system and collect behind selected weirs. PCB concentrations in the drain are several orders of magnitude higher than PCB concentrations found in groundwater samples collected within the trench of the drain and the surface water samples collected at the outfall of the drain. Based on the hydrophobic nature of PCBs and available stratigraphic information indicating predominantly low permeability soils at the site, the expected PCB migration rates and concentrations in groundwater outside of the Ten Mile storm sewer drain's concrete piping would be very low in comparison to PCBs in both soil and sediment samples collected from inside and outside of the piping. Although the movement of the PCB oil and contaminated sediment within the drain is currently being slowed by the weirs that were installed in the drain in 2010, that movement is not being stopped. In the absence of the interim source control actions called for in the September 2011 ROD, those contaminants will continue to migrate through the drain and into the Lange and Revere Canals, further contaminating the sediments and fish in those canals.

Are the contaminants contained in engineered structure(s) that currently prevents migration of contaminants? Is this structure sound and likely to maintain its integrity?

The Ten Mile drain pipe is an average of 6 feet in diameter. A series of seventeen weirs are installed within the drain at selected manhole locations near the Bon Brae Street and Harper Avenue intersection. The weirs are half-circle metal structures 2 feet in height that act like small dams. The weirs are not engineered barriers used to limit exposure or contain the PCB contamination. The weirs serve to pinpoint what section of the drain the contamination is re-entering and to act as temporary collection points, slowing the migration of PCB oil and contaminated sediment through the drain.

Are the contaminants in a physical form that limits the potential to migrate from the site? Is this physical condition reversible or permanent?

No. PCB oils found behind the weirs in the drain are dense non-aqueous phase liquids, are highly mobile, and are considered a highly hazardous substance. This physical condition is permanent.

Are there institutional physical controls that currently prevent exposure to contamination? How reliable is it estimated to be?

There is no current human exposure to the PCB oil or contaminated sediment in the drain system, which is located approximately 15 feet under the ground. However, sediments in the canal are contaminated with PCBs from past releases into the canal from the drain. There are no physical controls that currently prevent exposure to the contaminated sediments, but institutional controls in the form of "do not eat" fish consumption advisories were put in place in May 2011.

Other information on site/contaminant stability?

n/a

Site/Project Name:	**Ten-Mile Drain**

Criteria #3 – CONTAMINANT CHARACTERISTICS (Weight Factor = 3)

(Concentration, toxicity, and volume or area contaminated above health based levels)

List Principle Contaminants (Please provide average and high concentrations.):

(Provide upper end concentration (e.g. 95% upper confidence level for the mean, as is used in a risk assessment, or maximum value [assuming it is not a true outlier], along with a measure of how values are distributed {e.g. standard deviation} or a central tendency values [e.g., average].)

Contaminant	***Media**	****Concentrations**
PCB	ST (behind weirs)	10 ppm to an average 14,000 ppm
PCB	OIL (behind weirs)	Low 23 ppm and highest 240,000 ppm
PCB	GW	Low 0.84 ug/L to highest 3,800 ug/L
PCB	SW (outfall)	Low 0.17 ug/L to highest 9.5 ug/L

*(*Media: AR – Air, SL – Soil, ST – Sediment, GW – Groundwater, SW – Surface Water)*

*(**Concentrations: Provide concentration measure used in the risk assessment and Record of Decision as the basis for the remedy.)*

Describe the characteristics of the contaminant with regards to its inherent toxicity and the significance of the concentrations and amount of the contaminant to site risk. *(Please include the clean up level of the contaminants discussed.)*

Monitoring data collected behind the seventeen weirs between May 2010 and April 2011 tracked sediment concentrations in the drain and tested for the presence of PCB oil. If either sediment or oil was present, it was sampled and analyzed for PCBs, and all samples contained PCBs. Limited information is available on the amount or volume of PCB oil or contaminated sediment within the drain.

The average PCB concentrations found in the sediment behind the weirs ranged from less than 10 ppm in manholes along Harper Avenue south of Lakeland Street, to an average of 14,000 ppm in a manhole at the intersection of Bon Brae Street and Harper Avenue. Overall, less than two inches of sediment has accumulated behind the weirs since the April 2010 removal activities. The PCB oil caught behind the weir at the Bon Brae and Harper manhole tested as high as 240,000 ppm.

PCB oil is consistently found at six weirs along Bon Brae Street. Neither a formal RI/FS report nor a human health or ecological risk assessment are available. No cleanup levels have been established.

Describe any additional information on contaminant concentrations which could provide a better context for the distribution, amount, and/or extent of site contamination. *(e.g. frequency of detection/outlier concentrations, exposure point concentrations, maximum or average concentration values, etc.....)*

Current weir monitoring data does not track the amount of PCB oil or contaminated sediment in the drain. However, information from the recent removal actions at the site provides details on the quantity of contamination recovered from the drain. At the completion of the April 2010 removal action, a total of five roll-off boxes of PCB-contaminated sediment was removed from the drain (approximately 46.03 tons) and transported off site for disposal. In February 2011, EPA cleaned PCB oil from behind six weirs, resulting in one 55-gallon drum of soiled absorbent snares for disposal.

Other information on contaminant characteristics?

Site/Project Name:	Ten-Mile Drain

Criteria #4 – THREAT TO SIGNIFICANT ENVIRONMENT (Weight Factor = 3)

(Endangered species or their critical habitats, sensitive environmental areas.)

Describe any observed or predicted adverse impacts on ecological receptors including their ecological significance, the likelihood of impacts occurring, and the estimated size of impacted area:

PCBs continue to infiltrate the Ten Mile storm drainage system, accumulate behind selected weirs, and migrate to the Lange and Revere canals. Recent sediment samples collected in the canals indicated a mean PCB concentration of 23.88 ppm and a maximum of 570 ppm. This new information helps the Region understand the reason for the high PCB concentrations in the edible portions of the fish caught in 2010 in the canals, which resulted in a "do not eat" fish advisory for the canals and selected species in Lake St. Clair. (any endangered species in Lake St. Clair?)

In addition, below is the federal list of endangered species in two counties (Macomb and St. Clair) adjacent to the Ten-Mile Drain Superfund Site. A portion of Lake St. Clair is in Canada.

For Macomb County:

Group	Name	Status
Clams	Rayed Bean (Villosa fabalis)	Proposed endangered
Mammals	Indiana bat (Myotis sodalist)	Endangered
Reptiles	Eastern massasauga rattlesnake (Sistrurus catenatus)	Candidate

For St. Clair County:

Group	Name	Status
Clams	Rayed Bean (Villosa fabalis)	Proposed endangered
Clams	Snuffbox mussel (Epioblasma triquetra)	Proposed endangered
Flowering plants	Eastern prairie fringed orchid (Platanthera leucophaea)	Threatened
Mammals	Indiana bat (Myotis sodalist)	Endangered

Would natural recovery occur if no action was taken? ☐ Yes ☒ No
If yes, estimate how long this would take.

Other information on threat to significant environment?

Without implementing the interim source control action selected in the September 2011 ROD, PCB contaminants will continue to be released from the drain, and the sediments and fish in the canals will become more contaminated.

Site/Project Name:	**Ten-Mile Drain**

Criteria #5 – PROGRAMMATIC CONSIDERATIONS (Weight Factor = 4)

(Innovative technologies, state/community acceptance, environmental justice, redevelopment, construction completion, economic redevelopment.)

Describe the degree to which the community accepts the response action.

The community supports the interim cleanup action as a short term measure to mitigate the transport of PCB contamination to the canals and reduce additional contamination to the canal sediments. Some members of the community have expressed frustration regarding the amount of time and money that has been spent on past cleanup actions at the site and the fact that there is still contamination in the drain and canal sediments. They expect transparency, and also want EPA to meet with them to communicate new data. The Region is committed to both. Senator Carl Levin frequently requests updated on our progress and his staff actively participates in community meetings.

Describe the degree to which the State accepts the response action.

The Michigan Department of Environmental Quality concurred with the interim ROD and signed a concurrence letter on 9/30/2011.

Describe other programmatic considerations, e.g.; natural resource damage claim pending, Brownfields site, use of innovative technology, construction completion, economic redevelopment, environmental justice, etc…

n/a